

**ABSTRACT**

The present invention compares expression profiles from matched samples to identify differential gene expression. Samples are matched according to physiological, pharmacological and/or disease state. Comparison of matched samples eliminates gene expression differences that are the result of changes in variables that are not of interest.

5 The gene expression differences that remain can be attributed with a high degree of confidence to the unmatched variation. The gene expression differences thus identified can be used for example to diagnose disease, identify physiological state, design drugs, and monitor therapies.

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